

SOUTH CAROLINA ELECTRIC & GAS COMPANY

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USNRC REGION II
ATLANTA, GEORGIA

O. W. DIXON, JR.
VICE PRESIDENT
NUCLEAR OPERATIONS

April 15, 1983

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Mr. James P. O'Reilly
Regional Administrator
U.S. Nuclear Regulatory Commission
Region II, Suite 2900
101 Marietta Street, N.W.
Atlanta, Georgia 30303

SUBJECT: Virgil C. Summer Nuclear Station
Docket No. 50/395
Operating License No. NPF-12
Inadvertent Safety Injections at
Virgil C. Summer Nuclear Station

Dear Mr. O'Reilly:

South Carolina Electric and Gas Company hereby submits a Special Report in accordance with Technical Specification 6.9.2 concerning two inadvertent safety injections at the Virgil C. Summer Nuclear Station.

The first event occurred on March 18, 1983, with the Plant in a Mode 4 condition. Reactor Coolant System pressure was approximately 1100 psig and temperature was approximately 345°F. The cause of this event has been attributed to personnel error. Maintenance personnel were in the process of performing Reactor Trip Breaker testing for Train "A" as required by Nuclear Regulatory Commission IE Bulletin No. 83-04. The technician responsible for performing the test was not adequately briefed and was under the assumption that he was to perform the entire Solid State Protection System surveillance procedure. He had previously performed this test and was familiar with the normal method of testing. The technician requested release to work from the Control Room Foreman. The Control Room Foreman informed him that only a partial test was to be performed and that the blocks associated with the Low Pressurizer Pressure and Steamline Safety Injection were not to be unblocked. The technician reviewed the procedure and found the step associated with the Reactor Trip Breakers. This is part of the Semi-automatic Test Circuitry, but is addressed as a separate step. In reviewing this step, the technician found no reason why he could not meet the criteria that the Control Room Foreman had specified. Permission was given to

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Mr. James P. O'Reilly
Inadvertent Safety Injections
Page Two
April 15, 1983

perform the testing based on the technician's knowledge. The technician performed the Precautions and Initial Conditions sections of the procedure and proceeded to the step for Reactor Trip Breaker testing. The procedure requires that the switches on the test panel be positioned as follows:

LOGIC A	--	23
LOGIC B	--	24
LOGIC C	--	23
LOGIC D	--	24
PERMISSIVES	--	OFF
MEMORIES	--	OFF

The technician then selects any one of the four normal input function test pushbuttons. In this case, the technician depressed function switch one (1), which places A416 UV output Low and causes A516, Pressurizer Safety Injection, to "pickup." This causes the output relays for a Train "A" Safety Injection to "pickup," as well as the Train "A" Reactor Trip Breakers to trip. It should be noted that if function switch three (3) had been depressed, the test would have been completed without a Safety Injection actuation. Reactor Coolant System (RCS) Wide Range Pressure Recorders (PR402, 403) indicated that the RCS pressure increased to approximately 1550 psig during the event. However, Control Room personnel stated they observed RCS pressure reaching 2000 psig, at which time the Safety Injection signal was blocked and the Safety Injection was terminated. Subsequent testing performed on the subject recorders indicate that they were performing properly, thereby supporting the case that RCS pressure peaked at approximately 1550 psig. However, assuming that the operator observations were correct, the condition for exceeding 1600 psid on the Steam Generator support plate and tubes has been evaluated. This evaluation indicates that the Inadvertent Safety Injection produced negligible impact on the integrity of the Steam Generators.

Also, during subsequent analysis of this event, it was recognized that there appears to be a specific primary plant condition where installed RCS safety equipment prevents satisfying the Safety Injection Termination criteria as specified in Station Emergency Operating Procedure (EOP-1), "Safety Injection Actuation." This condition exists when RCS temperature is below approximately 250°F, and the Cold Overpressure Protection System (COPS) is armed. For this condition, the setpoints for the associated Pressurizer Power Operated Relief Valves is less than 2000 psig.

Mr. James P. O'Reilly
Inadvertent Safety Injections
Page Three
April 15, 1983

On March 18, 1983, a Station Order was issued to the Operations Group to ensure that operations personnel were cognizant of this condition, and aware of the fact that they have the authority and responsibility to take actions necessary to protect the facility and the health and safety of the general public in accordance with Station Administrative Procedure (SAP-200), "Conduct of Operations." This condition will be further evaluated in order to determine if procedure and/or system changes are necessary.

Corrective action has been taken in order to prevent recurrence of the conditions which initiated this Safety Injection. The technician involved has been counselled to understand that any deviations from normal routine (procedures) should be investigated by supervision prior to implementation. The Maintenance Foreman was also counselled on the fact that the technician should be briefed fully of the job to be performed. If a procedure is to be performed, in part, a thorough evaluation or review of the procedure and reference manuals should be performed prior to performing the test.

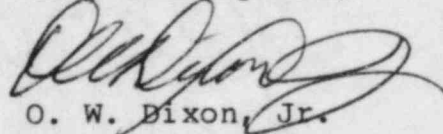
A second Inadvertent Safety Injection occurred on March 19, 1983, with the Plant in a Mode 5 condition. The RCS was water solid, at approximately 325 psig and 150°F. Maintenance personnel were in the process of performing Reactor Trip Breaker testing for Train "B" as required by NRC IE Bulletin No. 83-04. While re-establishing the Solid State Protection System to service following the required Reactor Trip Breaker Testing, the manual blocks for Pressurizer Low Pressure Safety Injection and Steam Line Low Pressure Safety Injection are reinstated by operating the Block/Reset switches on the Main Control Board. A few seconds after completion of this step of the procedure, a First Out Annunciator was received for "Low Pressurizer Pressure Safety Injection." The event was immediately recognized as being inadvertent, and the Safety Injection was terminated. During the transient, RCS pressure peaked at approximately 550 psig. The cause of this event has been attributed to malfunction of the associated Block/Reset switches on the Main Control Board resulting in the Pressurizer Low Pressure Safety Injection becoming reset for Train "A". Each switch consists of the "Block" and "Reset" positions with a spring return to the center position.

Mr. James P. O'Reilly
Inadvertent Safety Injections
Page Four
April 15, 1983

Action has been initiated to prevent recurrence of this condition. An awareness training instruction is being issued to the operations personnel alerting them to this occurrence. It cautions the operators to operate these switches with care and to verify the status indication for the Block/Reset function. This instruction will be issued by April 15, 1983. This information will also be included in the Operator Requalification Training Program. This action will be accomplished by May 30, 1983. In addition, an evaluation will be performed to determine if the Main Control Board Switches can be "separated" such that the Block and Reset functions will not be accomplished with the same switch. This evaluation is expected to be complete prior to startup after the first refueling.

As a result of both of the events described above, no equipment damage or personnel exposure resulted. If additional information is desired, please call us at your convenience.

Very truly yours,



O. W. Dixon, Jr.

ARK:OWD/dwf

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